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State-inducement Versus Self-initiation: A Comparative Study of Micro and Small Enterprises in Ethiopia

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Abstract

The promotion of micro and small enterprises has been a centerpiece of the Ethiopian government's strategy to alleviate urban unemployment among the youth since 2004. Since this time, the government has adopted twin strategies of creating a business environment conducive to start and operate MSEs while at the same time actively triggering the establishment of new MSEs. In this research, using a large dataset collected from 13 major cities in Ethiopia, we explore whether government-induced enterprises (cooperatives) differ from self-initiated enterprises (non-cooperatives) in various aspects of business productivity, business practices and performance,. We employ Control Function and two-stage Least Square methods to overcome selection problems. We also perform Propensity Score Matching as a check for robustness. We identify that cooperatives have greater access to a wide-array of support schemes. Consistent with the government strategy, cooperatives also employ more labor intensive technologies. Using three distinct measures of enterprise productivity, we find that productivity levels are largely comparable by enterprise type but differ widely by gender and levels of education of the entrepreneur. Similarly, after controlling for initial size, value added and gross profits are not statistically different between the two groups of enterprises. Our growth calculation also indicates that while growth rates of self-initiated enterprises are higher, conditional on positive rates of growth, the likelihood of transition into larger size category appears to be larger among cooperatives. We suggest for a more customized government support system that responds to the unique sets of binding constraints faced by such types of dynamic and growth-oriented enterprises that would complement the current all-embracing promotion program of the MSEs.

JEL code: L26, D24

Key words: cooperatives, government support, selection, technology, productivity, transition

1. Introduction

Many economies in Sub-Saharan Africa have experienced remarkable growth in the past decade. The corresponding improvements in labor market outcomes for the poor are, however, far from exciting (ILO, 2014), and many people are likely to continue to work outside of the formal wage-sector with vulnerable employment conditions (Deon et al., 2014). Self-employment in micro and small enterprise (MSE) start-ups has a considerable potential to provide alternative opportunities to those who are, in one way or another, excluded from formal labor markets to make a living. The preponderant majority of micro and small enterprises, however, have remained small and mostly informal, and thus their contributions to employment and poverty reduction are said to be disappointingly small. Empirical studies conducted in Sub-Saharan Africa, suggest a wide array of problems in the ways markets work, which prevent prospective entrepreneurs from joining the MSEs sector, and more importantly, precludes the transition of MSEs into medium-sized firms. Regulatory barriers, poor physical and legal infrastructure, price and political instability, as well as fragmented input and product markets are often cited as key impediments to enterprise growth.

Relieving business impediments and institutional constraints through regulatory reforms and the supply of hard and soft infrastructure constitutes the first crucial step to help initiate private enterprise growth. Reforms that promote competition, protection of property rights and contract enforcement laws, reduce barriers for new MSEs to start operation and enhance the growth potential of existing enterprises (Beck and Demirgüç-Kunt, 2006; Kinda and Loening, 2010; Page, 2012). In the short-run, such forms of broad-based interventions rarely put enterprises in high-growth trajectories and hence have had limited impacts in inducing transformational changes in MSEs. This observation has ignited a new wave of capability building interventions that are aimed at directly addressing constraints that are internal to the firm, such as limited access to finance and low levels of financial literacy and managerial capital.

Economists are increasingly recognizing capabilities (or lack thereof) as critical constraints to enterprise growth and transformation (Page and Söderbom, 2012). The increasing attention in capabilities is partly triggered by lessons learned from East and South-East Asia, where governments' involvement in the provisions of training on management and technology extension services, has played a pivotal role in the transformation of small enterprises into medium and large exporters (e.g., Sonobe and Otsuka, 2006, 2011). A few experiment-based studies also revealed that returns to both human and physical capital in the MSE sector in developing countries are high, suggesting the presence of large payoffs for interventions targeting greater capability acquisition by enterprises (e.g., de Mel et al., 2008; McKenzie and Woodruff 2008; Banerjee et al., 2013). Recent studies also suggest that, unlike the conventional wisdom, innovation among microenterprises is not exceedingly unusual. For example, de Mel et al. (2009) find that more than a quarter of sample microenterprises in Sri Lanka are engaged in some sort of innovation. Gebreeyesus and Mohnen (2013) also report that innovation practices are widespread in the informal footwear cluster in Ethiopia. These results indicate that MSEs have the potential to imitate, innovate and grow, and this potential remains unexploited due to several constraints.

This view is not, however, without its opponents. As early as 1996, using a sample of 400 Kenyan entrepreneurs, Cotter (1996) concluded that there is limited room for productive state intervention to speed up the graduation rates of micro and small enterprises. More recently, based on a performance tracking exercise of 55 new Ethiopian entrants in the manufacturing sector in 1998, Söderbom (2012) generalizes that "a small firm is unlikely to grow to become large". Similarly, considering a sample of 50 "*leading*" Ethiopian owned enterprises, Sutton (2011) argues that small firms do not possess the capabilities that are conductive for growth and transformation. While the direct policy implications of these

studies is not very clear, their results are often taken to mean that strategies designed to promote MSEs, are doomed to fail from the beginning.[1]

Of the very many MSEs, it is true that only few are able to grow on sustainable basis and graduate to the next size category. The constant influx and exit of enterprises is a basic expression of a continuous churning process among MSEs. Contrasted with the rapid creation of new enterprises, industry expansions driven by successful cases of enterprise growth are generally few and far between. Aggregate employment and productivity gains in the MSE sector are thus likely to arise from a handful of successful enterprises.

While triggering the creation of new enterprises is largely consistent with the objectives of employment creation and poverty reduction, sluggish growth and high levels of churning in the MSEs sector implies that jobs are often precarious with low levels of income and job security as well as poor working conditions. Rising wages and standard of living improvements often coincide with the successful expansion of a small group of rapidly growing enterprises on continuous basis. The question that then arises is whether the state can play a productive role in triggering the establishment of new growth-oriented enterprises and aid in the expansion of existing enterprises. The enterprise landscape in Ethiopia provides a unique opportunity to study this question more closely.

The Ethiopian government has long recognized MSEs' potential as sources of employment and incubators of light manufacturing technologies and as eventual seedbeds of industrial transformation (e.g., the National Employment Policy and Strategy of (MOLSA, 2009) and the Micro and Small Enterprise Development Strategies of 1997 and 2011 (FDRE, 2009, 2011)). To tap into this potential, two broad formulas were adopted: improving the investment climate and adopting a more targeted policy of actively encouraging the establishment of MSEs as means to alleviate urban unemployment. As a result, there are currently two types of MSEs: self-initiated enterprises and those which are cooperatively organized through the direct assistance of the state. [2] To our knowledge the literature that assesses the differences in productivity, growth and performance using micro-data consisting of both government programs induced and self-initiated enterprises is scanty.[3] The objective of this paper is thus to fill the lacuna in the literature by undertaking a study that would explore whether government-induced enterprises: a) do in fact have greater access to state support, b) adopt different technologies and business practices, c) enjoy higher productivity and growth, and d) are different in other important attributes that drive a wedge in performance with self-initiated enterprises.

We deal with the selection problem associated with non-random participation in the government program by using instrumental variable and non-parametric matching approaches. We find that government support seems to be highly skewed towards government-triggered cooperatives. Differences in accessing these support services seem to affect the production technology or factor usage among cooperative enterprises in favor of labor-intensive technology. We also detect statistically significant differences in aggregated measures of business practices scores between cooperatives and non-cooperatives, possibly reflecting better access to management and financial skills training among the

[1] These bold assertions, however, suffer from some notable oversights. First, most of the studies that attempted to explore the transition from one enterprise size to the other employ data that omits the very enterprise it attempts to draw lessons from. Sodorbom (2010), for example, uses CSA's Large and Medium Enterprise survey, which, by design, ignores micro and informal firms. Sutton (2011) mines qualitative information from non-random sample of large firms, making inference on the universe of enterprises problematic. In addition, these studies stand in sharp contrast to the findings by Sonobe et al. (2012), where growth and size expansion by small firms are found to undergird the remarkable expansion of the shoe industry in Ethiopia. To our knowledge, the evidence so far is mixed, and conclusive evidence based on longitudinal data that tracks MSEs development cycle over several years from start-up to exit, is largely absent.

[2] We interchangeably use the term cooperatives and non-cooperatives to refer to state-induced and self-initiated enterprises respectively.

[3] Rijkers, Laderchi and Teal (2008) employ microenterprises data drawn from Addis Ababa to explore the effect of a housing program on workers' welfare.

former group of enterprises. Productivity, value added and gross profit, however, are not markedly different between cooperatives and non-cooperatives. While we find employment growth rate among cooperatives is slower, when they grow, they are more likely to transit into larger size categories.

The rest of the paper is organized in the following manner: the next section provides a brief review of the related literature. Section 3 presents a synopsis of the MSE development program and sets the testable hypotheses. Data and the empirical strategy are discussed in section 4. Sections 5 and 6 present descriptive and estimation results respectively. The final section concludes the paper.

2. Related Literature

It is long recognized that jobs are escalators out of poverty through which gains from economic growth is transmitted into poverty reduction and more equitable income distribution. MSEs are often considered as powerful institutions that play a critical role in the fight against poverty and income inequality as they provide widespread employment opportunities in low income economies. Ayyagari et al. (2011), for example, find that the employment share of enterprises that employ less than 100 workers is more than 57% in low-income countries. Similarly, some studies estimate the GDP contribution of MSEs operating in the informal economy at far more than 50% in low-income economies (e.g., Ayyagari, Beck and Demirguc-Kunt, 2007). Government support for MSEs is thus often predicated on the notion that the labor intensive nature of MSEs' production organization spawns employment opportunities for the semi-skilled and unskilled segment of the population, with limited opportunities to make a living outside of the agricultural sector.

The nature of constraints MSEs face is multifaceted and hence government support limited to improving the investment climate or ensuring greater macro-economic stability may not trigger a sufficient wave of productivity growth that can have transformational impacts on MSEs. Continuously building enterprise capability is important to enhance MSEs' productivity and to exploit their employment creation potential. Even with improvements in business climate, enterprises that start out small, are likely to remain small in the foreseeable future without radical changes in the manner in which they are operated *(*e.g., Mead and Liedholm, 1998; Biggs, Ramachandran and Shah, 1999; Sonobe and Otsuak, 2006, 2011*).*

The growing recognition of the importance of enhancing MSEs' internal capability via more tailored, specific and micro-based approaches to enterprise development underlies the recent explosive growth of MSEs and SMEs development policies in many low-income countries. These policies are often designed or funded by governments, NGOs or social businesses and involve the provision of cheap credit and training of production and management skills, either free-of-charge or at a nominal price. Possible justifications for these types of interventions are related with market failures. For example, credit market may suffer from asymmetric information problem, and learning and applying management skills may have benefits that cannot be fully appropriated by the enterprise that invest in the acquisition of these skills leading to positive externalities.

Studies that evaluated such types of training and credit programs, report largely mixed results. A few studies, for example, show that these interventions have generated some positive effects on business practices and performances (e.g., Dupas and Robinson 2013; Augsburg et al. 2012; Mano et al. 2012; Banerjee et al. 2013; Karlan and Zinman 2011; Bruhn and Zia 2011; Drexler et al. 2011; Karlan and Valdivia 2011; Berge et al., 2012).

Other studies, however, show that active labor market support programs have had limited impacts on microenterprise development and significantly fall short of having

transformational impacts (e.g., Betcherman, 2004). A review of several studies on the provision of business development services by Zandniapour, Sebstad, and Snodgrass (2004), for example, indicates that while these programs are often associated with higher enterprise sales and profits, they do not generally lead to substantial increases in enterprise size, measured by the scale of employment. Similarly, de Mel et al. (2014) find that business training offered to a group of female business owners in urban Sri Lanka, did not have significant positive effects on sales turnover, profitability and capital stock.
The lack of transformational effects of enterprise development policies is not primarily because the support mechanisms have been poorly conceived or badly executed. By their very nature, many of the MSEs will not be able to grow beyond a certain size (they either exit or remain stagnant), and few will be able to noticeably expand their businesses with or without government support. The vast majority of MSEs are run by entrepreneurs who do not exhibit basic entrepreneurial characteristics and practices, such as differentiating between personal and business expenses, saving, investment and good management of their enterprises. Thus, even when the state intervenes to alleviate some of the business constraints related with, for example, regulation, finance and skills shortages faced by MSEs, it is less likely to bring about transformational changes in these businesses in the absence of policies that target MSEs operated by people with entrepreneurial attitude compatible with the practices of saving, reinvestment and rapid capital accumulation. In a study involving 200 Zambian firm owners, Phillips and Bhatia-Panthaki (2007), for example, find that only 21% of the owners exhibited basic entrepreneurial spirit that made them “truly entrepreneurial”, while more than half seemed to have set up the businesses out of desperation.

There are few empirical studies that attempted to explore the impact of active state support programs on MSEs performance using data from developing countries. An important exception is Rijkers, Laderchi and Teal’s (2008) study of MSE that participate in the Addis Ababa Integrated Housing Development Program (AAIHDP). This study uses a firm-worker matched data to examine the poverty reducing impact of participating in the program. The authors find that workers in the program firms (those that participate in AAIHDP) enjoy earning premium and the premium is the highest for the least educated workers. However, the study indicates that enterprises active in the program do not appear to have better technologies or higher productivity than enterprises that do not participate in the program. In fact, program firms appear to be less productive. Yet the study does not provide enough explanation as to why workers in the program firms are paid better given that they work in firms that are less productive. Also while the authors control for selection bias and endogeneity of factor inputs, their small sample size (about 200 program and non-program firms) does not allow them to draw strong inference about the impact of the program on firm level outcomes, such as productivity and profitability. Since the study also employs data collected in 2007 from MSEs active in the construction sector in Addis Ababa only, the results may not be generalizable to both new MSEs and MSEs in other sectors and cities.

A study commissioned by the Ministry of Urban Development and Construction (MoUDC) also briefly examined the difference between MSEs whose establishment was triggered by the state (cooperatives) and self-initiated MSEs (non-cooperatives). According to MoUDC (2013), two third of cooperatives appear to benefit from active state support. For example, while only about 24 % of MSEs report to have received any form of training, 76 % of cooperatives claim to have participated in at least one training program (MoUDC, 2013). Beyond a simple description of the differences in access to state support services, this study does not identify the impact of access to different support services on MSEs performance because of its limited scope.

With the aim of understanding key success factors and challenges faced by MSEs, Assefa et al. (2014) conducted a reconnaissance study of MSEs and the existing support schemes in six cities, Addis Ababa, Bahir Dar, Mekelle, Hawassa, Dire Dawa, and Adama,. The authors

report that non-cooperative enterprises (self-initiated enterprises) perceive cooperative-based MSEs to unfairly benefit from several state-backed support services, such as better access to infrastructure and preferential treatment in market linkages and public procurement programs. Yet the study is largely qualitative and exploratory leaving the large part of difference between cooperative and non-cooperative MSEs for further research.

This paper thus contributes to the literature dealing with MSEs in the following three important ways. First, we use a more recent and a larger data set collected from a broader spectrum of sectors in 13 large cities in Ethiopia. In this way, our results are more recent and comprehensive than previous studies, such as Rijkers, Laderchi and Teal (2008). Second, following the work of Rijkers, Laderchi and Teal (2008), we employ a more rigors methodological approach that allows us to better identify the effect of state-trigger on enterprise performance. We use both parametric regression techniques and non-parametric matching to overcome selection problem common in such types of studies. Third, by comparing cooperative and non-cooperative enterprises, we shed light on the existing support schemes (including the more recent ones) and the possible ways of improving them. For example, unlike previous studies, we can quantify not only the difference in state support between cooperative and non-cooperatives after controlling for a host of observable confounders, but also the likely impact of these differences on technology choice and productivity of MSEs.

3. Overview of the MSE development program and testable hypotheses

In response to rising urban unemployment, governments in low-income economies have been pursuing more targeted policies of fostering enterprise development. In the same spirit, the promotion of micro and small enterprises (MSEs) has been a centerpiece of the Ethiopian government's strategy to alleviate urban unemployment among the youth since 2004. More recently, the Growth and Transformation Plan (FDRE, 2010) clearly explained that government support for MSEs would be strengthened to "develop the micro and small enterprise sector" in line with the general objectives of private sector development and alleviation of urban unemployment. In connection with this, the government has been making efforts to improve the business environment as well as to build the capacity of entrepreneurs in the MSEs sector. Regarding the latter, the creation of cooperative-based enterprises as a more targeted way of supporting MSEs, has been used.

A group of young unemployed university, technical and vocational school graduates and high school graduates (even drop-outs) form cooperatives through direct and wide-ranging support from the Federal Micro and Small Enterprise Development Agency (FeMESDA) and Regional Micro and Small Enterprise Development Agencies (ReMESDAs). Cooperative Promotion and Controlling Departments are set up as part of the MSEs development strategy to help organize young unemployed individuals into cooperatives in areas of business that are considered more labor intensive.[4] The Addis Ababa Micro and Small Enterprise Development bureau and Regional Trade and Industry bureaus closely coordinate with other stakeholders to promote the establishment and growth of MSEs.

Members of the cooperatives are all working-owners of the enterprises who also take part in the joint management of the enterprise. Cooperatives elect a lead person to represent the interest of its members when dealing with the government, clients and suppliers. Final decisions on critical matters, however, are often reached on the basis of consensus.

[4] Under the MSEs development strategy priority sectors are agro-processing, wood and metal working, leather and leather products, textile and garment, food-processing, construction, and urban municipal activities (MSE Development Strategy, 2011).

Cooperatives, compared to self-initiated enterprises, benefit from preferential treatment in: 1) access to working premises at cheap prices, 2) the provision of technical and managerial training, 3) access to cheap credit through local micro-finance institutions, 4) market linkages with government development programs, such as the Addis Ababa Low Cost Housing Program, 5) access to technology, 6) access to market centers or product display areas, 7) participation in exhibitions and trade fairs, and 8) coaching and counseling services.

The main thrust of this paper is to examine how effective the government's assistance has been in fostering a dynamic entrepreneurial sector, and whether state-induced enterprises behave differently from self-initiated enterprises in a noticeable manner.

In Ethiopia, as in many developing economies, the entry decision to the MSEs sector is often taken as a last resort when options of wage-employment are not available. Moreover, few entrepreneurs venture into lines of businesses that are relatively unknown to them or to the market; they often choose risk averse strategies by settling for the production and marketing of commodities that already have established markets but offer lower profits. Congested or saturated markets are commonly interpreted as signaling low entry barriers and potential profitability, and hence MSEs operators are encouraged to imitate the production of low quality and low prices commodities (Sonobe and Otsuka, 2006; Gomez, 2008). *A priori*, it is thus not clear that the group of self-initiated entrepreneurs would be more successful than those who were induced by the government.

Accordingly, several empirically testable hypotheses are drawn from the existing enterprise support system:

Hypothesis 1*: Government-triggered enterprises continue to receive better access to a wide-range of support mechanisms in comparison with self-initiated enterprises.*

Hypothesis 2*: Different access to government support can potentially vary the input prices that government induced-cooperatives and self-initiated enterprises face. As a result, technology adoption and factor intensity would differ between the two types of enterprises.*

Hypothesis 3*: Heterogeneity arising from differences in access to production and managerial skills result in visible differences in business practice and productivity indicators skewed to (or favoring) government-induced cooperatives*.

Hypothesis 4*: Irrespective of the nature of ownership, enterprises operated by more educated and experienced entrepreneurs enjoy higher levels of productivity and grow faster and succeed in creating more jobs.*

By comparing various features of government programs-induced and self-initiated entrepreneurs, this paper aims to test the empirical validity of these hypotheses, thereby contributing to our understanding of the effectiveness of the existing support schemes and the possible ways of improving them.

4. Data and Empirical Strategy

Data

The pervasiveness of informality and the difficulty of generating reliable data on MSEs have made the job of exploring the nature of these businesses in developing countries difficult. The establishment of MSE development agencies and the increasing focus of international development assistance on MSEs are, however, gradually furnishing better access to information vital for research (see, for example, Ayyagari et al. 2011).

In Ethiopia, the Ministry of Urban Development, Housing and Construction (MoUDC) in collaboration with the Central Statistical Agency (CSA) occasionally collects basic information on MSEs, such as number of employees and investment capital. In April 2012, a short questionnaire consisting of questions on the founder's profile, as well as enterprise business practice and performance, was administered to more than 3000 both self-initiated and cooperatively organized MSEs in 13 major cities, whose population is greater than one hundred thousand inhabitants.[5]

The design of the sampling protocol and survey instrument was developed for this research in collaboration with the Central Statistical Agency (CSA) and MoUDC. In each city, Enumeration Areas (EAs) were randomly selected. A list containing all MSEs in these selected EAs was then prepared. From the list, roughly 12 MSEs which are in growth-oriented sectors (as defined by MoUDC) were randomly identified from each EA (see for example, MoUDC, 2013). To address the research questions outlined in the earlier section, we employ the data set drawn from MSEs active in the manufacturing and construction sectors from the 13 largest cities in Ethiopia.

Empirical strategy

A major methodological concern in comparing outcomes of government-induced and self-initiated enterprise is the problem of selection. Presumably, more capable and independent entrepreneurs would choose to start up their own business, and those less able might prefer more active state support, and, naturally, state support is likely to target those who needs it most, at least by design. In the presence of either self- or 'state'-selection, a simple parametric estimation that includes a dummy variable capturing the nature of the enterprise as explanatory variable leads to a biased result.

We thus mainly use instrumental variable (IV-2SLS) and control function (two-stage residual inclusion estimator, 2SRIE hereon) approaches to tackle the selection problem arising from non-random start-up status. Our IV estimation relies on the use of the entrepreneur's age and initial levels of employment as instruments for selection into the government program (inducement). Since the government's MSE support scheme primarily aims at tackling urban youth unemployment, we consider that entrepreneur's age is a relevant IV for selection; implicitly age has been an important criterion the government uses to organize young unemployed individuals into cooperatives. Entrepreneur's age can have a dual effect on enterprise performance. First, after controlling for education, age can proxy labor market externalities, and hence is positively correlated with efficiency (Cabral and Mata 2003). Second, it can also represent the existence of liquidity constraint under the assumption that wealth and entrepreneur age are positively related i.e. older entrepreneurs are likely to be wealthier. If age is a proxy for ability, its effect is more likely to persist throughout the operation of the enterprise, however, if age is mostly reflecting liquidity constraint, its effect should be temporary and significant only during the time of business startup (Cabral and Mata, 2003). To use age as a valid instrument for selection into cooperative we thus control for current and previous experience of the entrepreneur. We also indirectly control for the effect of age on wealth by considering the size of labor force at the time of start-up with the assumption that wealthier entrepreneurs initiate larger enterprises.[6]

Similarly, group formation is one of the main requirements to register as a cooperative, indicating that the initial size of enterprises in terms of number of persons (workers) is higher

[5] The survey cities are Addis Ababa, Adama, Bishofetu, Mekelle, Hawassa, Shashemene, Jimma, Bahir Dar, Dessie, Gonder Dire Dawa, Harar and Jijiga.

[6] On the contrary, even when age is correlated with wealth, wealth may be orthogonal to enterprise performance reducing the need to introduce additional controls. Nam et al., (2009), for example, find that entrepreneur's level of initial wealth did not affect the performance of iron and steel enterprises in northern Vietnam during start-up.

among cooperatives than self-initiated enterprises.[7] To the extent that initial size reflects access to finance, initial size may determine efficiency at the time of enterprise birth. In this sense, the importance of initial size in explaining current enterprise performance subsides over time as enterprises age. Remaining unobservable effects related with initial size effects, such as wealth or organizational ability, that persistent over time, are often highly correlated with current size. We thus employ controls for current employment to remove remaining selection arising from initial size with a weak assumption that size at start-up is fairly orthogonal to productivity once we control for current size.

We maintain a testable hypothesis that after controlling for labor market experience and current size, the effect of age and initial size on microenterprise outcome should be only through its effect on selection. We will, of course, test the validity of our instruments using over-identification restrictions and the Durbin-Wu-Hausman test.

The control function approach (2SRIE) while relying on the same kinds of identification conditions as 2SLS, unlike 2SLS, it employs fitted values of residuals as instruments rather than estimated values derived from the first stage regression. To the extent that confounders that affect both selection and business practice and outcomes are observable, we can also remove the bias that results from the selection process using non-parametric matching estimators. As a robustness check, we thus employ Propensity Score Matching (PSM) based on a univariate propensity score.

The difference between cooperative and non-cooperatives may not start and end with the level of state support they receive during start-up. Cooperatives, compared to non-cooperatives, are also more likely to cultivate close relationships with support implementation agencies that would grant them continued access to state assistance. This can potentially alter the input prices that enterprises face in the market, which can in turn affect their production function and level of technology adopted (e.g., see Rijkers, Laderchi and Teal 2008).[8] To assess the impact of state-inducement on the production function and technology adoption, we estimate a generalized translog production function indicated in equation (1).

$$lnY = lnA_{\alpha_i \beta_i} + \sum_{i=1}^{n} \alpha_i \ln X_i + \left(\frac{1}{2}\right) \sum_{i=1}^{n} \sum_{j=1}^{n} \beta_{ij} \ln X_i \ln X_j + \varphi \qquad (1)$$

where Y represents value added and X vector of inputs including capital stock (k), labor (l) and raw material (m). lnA is a measure of levels of technology, which is not observed directly. α and β are parameters to be estimated. The third term on the right presents interactions between inputs. To test whether Cobb-Douglas restrictions are valid, we examine whether the interaction terms are different from zero,

$$\beta_{kk} = \beta_{kl} = \beta_{km} = \beta_{ll} = \beta_{lm} = \beta_{mm} = 0$$

Failing to reject the joint equality of the parameters suggests that a Cobb-Douglas production function is appropriate for our data.

To directly test whether state-induced enterprises (cooperatives) adopt different types of production technology compared to self-initiated enterprises, equation (1) is modified by

[7] This is clearly seen in Table 5.1., where cooperatives are found to be much larger than non-cooperatives at the time of business start-up.

[8] The difference in level of support, such as access to working premises, is assumed to affect input prices and that in turn affects quantity and method of input utilization. Since we do not have information on input prices, however, we cannot directly test the implication of the support services on prices faced by cooperatives and non-cooperatives in the input market. Alternatively, support systems, such as training in production and management skills, could alter input usage and hence technology adoption.

interacting all production function parameters with the cooperative dummy, C. If technology adoption does not differ by enterprise type, all cooperative interacted terms should be zero, both individually and jointly.

$$lnY = lnA_{\alpha_i\beta_i} + \sum_{i=1}^{n}\alpha_i \ln X_i + \left(\frac{1}{2}\right)\sum_{i=1}^{n}\sum_{j=1}^{n}\beta_{ij} \ln X_i \ln X_j + \sum_{i=1}^{n}\gamma_i C \ln X_i + \left(\frac{1}{2}\right)\sum_{i=1}^{n}\sum_{j=1}^{n}\theta_{ij} C \ln X_i \ln X_j + \varphi \quad (2)$$

Since selection into cooperatives is not random, we will instrument all the interaction terms of production factors with the cooperative dummy using age and size of the labor force at start up. The instruments are augmented by additional controls for labor market experience of the entrepreneur, sector, location and enterprise current size.

When the support variable is binary, Probit models are used to assess whether access to state support schemes is systematically different between cooperatives and non-cooperatives. To overcome endogeneity arising from non-random selection, IV-probit is implemented.

In addition to the estimation of the production function and technology adoption, we are also interested in assessing whether productivity levels are different between cooperatives and non-cooperatives. Three independent and output-based measures of productivity are used.[9] The first relies on the index number approach to compute Technical Factor Productivity (TFP). The TFP index has the advantage of handling multiple inputs and outputs requiring strong assumptions neither on the exact functional form of the production function nor on its uniformity across firms. Its high data quality requirement and strong behavioral assumptions regarding profit maximization and competition, however, makes the TFP-index based productivity measurement vulnerable to criticism. In a study of MSEs, however, the assumptions of profit maximization and limited market power are not implausible. Regarding market power, for example, MSEs produce low quality and limited range of products with low demand elasticities in mostly saturated markets with atomistic competition, thereby making it nearly impossible for any single enterprises or group of enterprises to exercise considerable market power.

Accordingly, the TFP index for enterprise i in year t is defined as

$$\ln TFP_i = \left(lnY_i - \overline{lnY}\right) - \sum_j \frac{1}{2}\left(\emptyset_{ij} + \overline{\emptyset_j}\right)\left(lnX_{ij} - \overline{lnX_j}\right) \quad (3)$$

Where Y captures valued added, $\emptyset_{ij}$ is the cost share of input j in enterprise i. X represents input costs of capital stock (k), labor (l) and raw material (m). $\overline{lnY}$ represents the natural log of the average value added (output), and hence corresponds to the values of a hypothetical firm to which the value added (output) of other enterprises are compared. Similarly, $\overline{\emptyset_{ij}}$ and $\overline{lnX_j}$ show the average value of input j and its respective cost shares in the hypothetical enterprise. Therefore, the TFP index captures the relative productivity of enterprise i in the sample.

[9] These indicators of productivity measures, conditional on input use, how much extra output an enterprise produces in comparison to another firm. A caveat here is that in the presence of market power or significant product differentiation, output-based productivity measures will include price effects thereby attenuating the accuracy of the measurement of productivity difference among enterprises. In our sample, however, this is not a major concern as micro and small enterprises have limited market power by virtue of their individual size and their sheer numbers in any of the industries that we have considered, and hence any single individual firm or group of firms cannot exercise meaningful market power in price setting.

The second productivity measure is also non-parametric output-oriented model called Data Envelopment Analysis (DEA).[10] The computation of DEA efficiency measures relies on linear programming to identify the relative technical position of an enterprise from the productivity frontier, and "efficiency is measured as a relative distance from the frontier" (Ji and Lee, 2010). Similar to the TFP-index approach, DEA can deal with multiple inputs without a need to specify the production function *a priori*. Since it is not stochastic, DEA model's main limitation is that its computing scores puts a greater burden on data precision, and is likely to suffer from measurement error.

The third productivity measure is labor productivity, which is based on partial equilibrium approach. Labor productivity tells us how much output an average worker produces and is computed by a ratio of value added to the number of workers employed by the enterprise.[11]

5. Descriptive Results

Table 5.1 presents basic entrepreneur and enterprises characteristics for cooperatives and non-cooperatives. Cooperatives are mainly operated by male, younger and more educated entrepreneurs. More than one in ten cooperative entrepreneurs (about 12 %) have also completed technical and vocational education training, as opposed to only 6% of entrepreneurs operating non-cooperative based enterprises. Non-cooperatives entrepreneurs seem to be older and more experienced. Since the cooperative system is a state intervention designed to provide income earning opportunities to young and unemployed graduates, it is not surprising that entrepreneurs who are operating cooperatives, are more educated and younger. Relatedly, the significant difference between the age of cooperative and non-cooperative entrepreneurs also justifies the use of age as an instrument for the state-inducement (cooperative) status of the enterprises.

Table 5.1 also shows that cooperatives employ a larger number of paid and unpaid workers during business start-up and at the time of data collection in 2012. During the start-up phase, cooperatives are expected to be larger than non-cooperatives by the very nature of formation. This is explained by a government rule that requires school leavers or unemployed youth to organize themselves into groups consisting of at least five members to register as cooperatives (FeMSEDA, 2013). Consistent with this, more than 94% of cooperatives are formally registered with the local authorities. Registration of cooperatives is less than 100% reflecting the possibility that some cooperatives might have not renewed their registration at the time of the data collection. Non-cooperative enterprises, in contrast, appear to be older, smaller and informal.

Table 5.2 indicates the sectorial and geographical distribution of enterprises. Both location and sector-wise, there is a significant difference between the two types of enterprises. Nearly 50% of cooperatives are engaged in the construction, sector, while about 23 % of non-cooperatives are active in this sector. About 23% of non-cooperatives are located in Addis Ababa with the rest more or less evenly dispersed across the other 12 cities. In contrast, Addis Ababa, Jimma, Bishoftu and Adama account for 85% of cooperative enterprises.[12] The concentration of cooperative MSEs in these cities might be explained by the relative proximity of these three cities to Addis Ababa and its larger market size. The three cites proximity to FeMSEDA, which is a focal point for developing a framework of assistance and coordinating the support system to MSEs through the regional agencies, might be another attractive feature of being located in these four cities. Anecdotes suggest that the MSEs sector in cities that are further away from Addis Ababa, is less well developed

[10] Output-orientation implies maximizing the levels of output an enterprise produces using given levels of inputs, while input orientation implies producing a fixed level of output by minimizing the level of input usage.
[11] Value added is calculated by subtracting raw material, utility and transportation costs from sales revenue.
[12] The three cities are the closest to Addis Ababa, compared to the other 9 cities. The farthest city, Jimma, is located at 305 km Southwest of Addis Ababa, Adama at 107 km and Bishoftu at 47 km.

(Assefa et al., 2014). Moreover, differences in capacity and responsiveness of regulatory and service delivery activities between federal and regional offices also explain the relative concentration of MSEs in some cities and not in others.

Table 5.1. Basic characteristics of entrepreneurs and firms by firm-type.

	Cooperatives	Non-cooperatives	All
Entrepreneur characteristics			
% Male	79.0***	60.7	63.5
Age	30.8	35.9***	35.1
Years of schooling	9.65***	8.18	8.41
% illiterate	0.97	10.6***	9.1
% knows how to read and write	2.26	5.00**	4.58
% Primary school completed	33.2	32.5	32.6
% High school completed	40.7	38.4	38.8
% Vocational school completed	11.9***	5.65	6.62
% University completed	11.0*	7.88	8.36
Years of experience operating the current enterprise	2.66	5.54***	5.09
Years of prior experience before the current enterprise	3.14	3.46	3.41
Enterprise characteristics			
Years of operation	3.76	6.17***	5.78
Number of paid workers when the enterprise started operation	10.6***	1.18	2.63
Current number of paid workers	6.09***	1.44	2.15
Number of unpaid workers when the enterprise started operation	2.44***	1.20	1.39
Current number of unpaid workers	2.32***	1.28	1.44
% micro	49.7	92.2***	85.7
% formally registered	93.9***	62.9	67.7
% with business licenses	89.0***	61.8	66.0
% with TIN number	55.8	56.7	56.5
Number of observations	**310**	**1700**	**2010**

Note. *** p<0.01, ** p<0.05, * p<0.1

Table 5.2. % sector and location

	Cooperatives	Non-cooperatives	All
% Sector			
Metal and wood working	17.1*	21.4	20.8
Construction	49***	4.9	11.7
Agro-processing	12.3***	35.9	32.3
Textile and garment	10.7**	16.7	15.8
Leather and footwear	2.90**	6.77	6.17
Urban agriculture	1.94	8.88***	7.81
Food preparation	6.13	5.35	5.47
Other activities	0.0	3.70***	3.20
% town			
Addis Ababa	51.6***	23.4	27.7
Hawassa	0.01	4.12**	3.58
Mekele	0.32	9.05***	7.71
Gondar	1.61	3.65*	3.33
Bahir Dar	2.90	12.2***	10.8
Dessie	4.83	8.11*	7.61
Jimma	10.3**	6.12	6.77
Shashemene	2.26	3.06	2.94
Dire Dawa	1.29	7.59***	6.62
Bishoftu	17.1***	10.2	11.24
Adama	6.45	6.29	6.32
Jijiga	0.32	2.77***	2.39
Harar	0.32	3.47***	2.99
Number of observations	**310**	**1700**	**2010**

Note. *** p<0.01, ** p<0.05, * p<0.1

Table 5.3 shows that large number of cooperatives benefits from a range of state-support schemes. More than one in three cooperatives, for example, had access to state-backed cheap credit, while the comparable figure for non-cooperatives is one in five. The government has granted 70% of cooperatives working premises, land or shades.[13] In comparison, only 26% of non-cooperatives received land from the government.

The difference in access to state support schemes is even starker when we look at access to training. More than 75% and 47% of cooperatives had access to formal training on production skills and technology, and on management and financial skills respectively. The corresponding figures for non-cooperatives are paltry 18% and 16% respectively. Our result is very similar to the one reported by MoUDC (2013) where two third of cooperative operators are found to have attended some form of training program, while the sample average is only 24 %. Similarly, the likelihood of receiving a one-stop service and being located in a cluster appears to be higher among the cooperatives.[14] This finding is highly consistent with Hypothesis 1.

[13] Shades are small working places or shops constructed out of container parts and corrugated iron by the city administration.
[14] One-stop service involves the act of bringing various government agencies tasked with registration and business support services into one convenient location where multiple services can be offered to clients. One-stop shops are places in different part of the sample towns. These services are delivered with the aim of reducing entry barriers associated with business registration, licensing, and access to related government support services (MoUDC, 2013).

Table 5.4 presents the size transition matrix by employment levels for cooperatives and non-cooperatives separately in panels A and B. The rows and columns in Table 5.4 indicate enterprise size measured by number of workers at start-up and in April 2012 (time of data collection) respectively. The cells in the table are thus interpreted as the percent of enterprises that started out in the size category indicated in the rows and are found to be in the size category indicated in the columns in April, 2012. For example, the left most cell in Panel A in Table 5.4 indicates that about 80% of cooperatives that employed a maximum of five workers during business start-up, employed at most 5 people in April, 2012. Panel B also states that 95.5 % of non-cooperative that employed a maximum of five workers during business start-up, employed at most 5 people in April, 2012. In both panels, the diagonal and shaded part of the table indicates that enterprise size did not change significantly between start-up and April, 2012.

Table 5.3. Indicators of government support by firm-type

Variable	Cooperatives	Non-cooperatives	All
% of enterprises			
Received credit from MFIs	35.8***	20.5	22.9
Received land from the government	69.7***	26	32.7
Attended formal training on production skills/technology	75.2***	22	30.2
Training was useful	96.1***	87.7	91
Attended formal training on management and financial skills	47.8***	17.1	21.8
Training was useful	95.3	92.4	93.4
Received one-stop service	62.3**	55.1	56.2
One-stop service was good or fair	35.8	37.0	36.8
Enterprise is located in a cluster	71.8***	16.4	24.9
Clustering is useful	90.1***	71.6	79.8
Number of observations	310	1700	2010

Note. *** p<0.01, ** p<0.05, * p<0.1

According to Table 5.4, about 20 % of cooperatives that employed at most five workers when they first started their operation were employing more than five workers in 2012. The corresponding figure for non-cooperatives as indicated in Panel B is 4.5 %. . Transition to the next size category, however, is much more nuanced in both the cooperative and non-cooperative group of enterprises that employed more than five but less than 20 workers during start-up,. However, 37.5% of non-cooperatives enterprises that started with between 20 and 50 workers were found to employ more than 50 workers in 2012. In contrast, Panel A shows that none of the cooperatives in this same start-up size category expanded in size to employ more than 50 workers by 2012. . Similarly, 60% of the largest non-cooperatives have not seen their size contracted in 2012, compared to only 15.4% of cooperatives. It is important to note that size reduction in cooperatives could also occur due to some members leaving the cooperatives. As the same time, some of the cooperative MSEs may have shrunk to more efficient size over time as we cannot rule out the possibility of efficiency gains by some of the cooperatives who were inefficiently over-sized in the beginning. This is particularly related to the membership size requirement MSE need to fulfill to register their new business as a cooperative.

In short, Table 5.4 suggests that stagnation rather than transition of MSEs appears to be common. Slow growth appears to be a recurrent finding on the study of MSEs growth

behavior (e.g., McPherson, 1996; Dawson, 1997; Mead & Liedholm, 1998). While in many cases severe structural and policy-induced barriers to growth might prevent MSEs from growing, the importance of entrepreneur's focus on survival-type of strategies with limited proclivity towards growth cannot be overestimated (USAID, 2005). We will take up determinants of enterprise growth and transition more formally in the next section.

Table 5.4. Size transition matrix

Panel A. Transition of cooperatives

Size at start up \ Size in 2012	≤ 5	5>L≤20	20>L≤50	L>50
≤ 5	79.4	17.6	1	2
5>L≤20	13.1	83.9	2.2	0.7
20>L≤50	3.5	78.9	17.5	0
L>50	7.7	76.9	0	15.4

Note: The figures presented in the table indicate percent of cooperatives that were in the size category indicated on the row during start-up and moved to the size category indicated on the respective columns in 2012

Panel B. Transition of non-cooperatives

Size at start up \ Size in 2012	≤ 5	5>L≤20	20>L≤50	L>50
≤ 5	95.5	4.4	0.1	0.00
5>L≤20	40.1	58.2	1.7	0.00
20>L≤50	0.00	0.00	62.5	37.5
L>50	20.0	20.0	0.00	60.0

Note: The figures presented in the table indicate percent of non-cooperatives that were in the size category indicated on the row during start-up and moved to the size category indicated on the respective columns in 2012.

6. Estimation results

Our first empirical model addresses the question: do cooperatives differ from non-cooperatives in access to state support services in any significant way? Table 6.1 provides some answers to this question parametrically and Appendix D, panel 1, non-parametrically. We examine three important support services that government agencies provide for MSEs; access to training on production technologies, land and one-stop services. As indicated in columns 1 and 2, cooperatives have better access to training on production technologies, with marginal effects close to 44%. The PSM estimates indicated in the first column of Appendix D, panel 1 also suggest very similar marginal effects at 42%.

Similarly, the probability of receiving land from the government is more than 40% higher for cooperatives than non-cooperatives in both the parametric and non-parametric models. While one-stop services are in principle available for all types of formal MSEs irrespective of how they are established, take-up among cooperatives appears to be higher by about 17% in the regressions model and 20% in the matching formulation. This is partly explained by

the prevalence of a large number of informal enterprises in the non-cooperative group of enterprises as shown earlier in Table 5.1.

Columns 7 to 9 in Table 6.1 present the estimation results on aggregate support score, which is calculated by adding the six support services horizontally. These include access to cheap credit, training on production technology, training on management and finance, land or working premise provision, one-stop service and clustering.[15] The scores are normalized with mean zero and standard deviation one. As shown in Columns 7 to 9 and in Appendix D, panel 1, compared to non-cooperatives, the scores seems to be at least 1.20 standard deviation units higher for cooperatives on aggregate. This indicates that cooperatives continue to benefit disproportionately from state support, thus confirming Hypothesis 1.

[15] We include clustering as support services because business location for cooperatives is often determined by the relevant government agency responsible for registering and organizing them. Cooperatives are thus more likely to enjoy benefits arising from agglomeration economies (e.g, Ali and Peerlings, 2011).

Table 6.1. Estimation results of access to various support services

VARIABLES	Training on production technologies		Received Land from the government		Received one-stop service from the government		Aggregate support score		
	Probit	IV-Probit	Probit	IV-Probit	Probit	IV-Probit	OLS	2SLS	2SRIE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cooperative dummy	1.20***	1.63***	1.06***	1.94***	0.18*	-0.56	1.21***	1.31***	1.21***
	(0.10)	(0.46)	(0.10)	(0.47)	(0.10)	(1.63)	(0.07)	(0.34)	(0.07)
Entrepreneur is male	-0.03	-0.04	-0.22***	-0.24***	-0.01	0.01	-0.14***	-0.15***	-0.14***
	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)	(0.08)	(0.05)	(0.05)	(0.05)
Years of entrepreneurial experience	0.01	0.01	0.00	0.01	0.01***	0.01*	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Years of operation	0.00	0.01	0.02***	0.02***	-0.01*	-0.01*	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Entrepreneur is illiterate	-0.45**	-0.43**	-0.53***	-0.48***	-0.45***	-0.46***	-0.44***	-0.37***	-0.44***
	(0.18)	(0.18)	(0.16)	(0.16)	(0.15)	(0.15)	(0.11)	(0.10)	(0.11)
Entrepreneur knows how to read and write	-0.45**	-0.45**	-0.42**	-0.40**	-0.67***	-0.65***	-0.44***	-0.37***	-0.44***
	(0.21)	(0.21)	(0.19)	(0.19)	(0.18)	(0.20)	(0.12)	(0.11)	(0.12)
Entrepreneur is primary school completed	0.04	0.04	-0.33***	-0.32***	-0.33***	-0.32**	-0.22***	-0.16**	-0.22***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	(0.08)	(0.08)	(0.08)
Entrepreneur is high school completed	0.10	0.10	-0.15	-0.16	-0.25**	-0.23*	-0.14*	-0.08	-0.14*
	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)	(0.12)	(0.08)	(0.07)	(0.08)
Entrepreneur is vocational school completed	0.37**	0.33**	-0.17	-0.23	-0.13	-0.07		0.06	
	(0.16)	(0.17)	(0.16)	(0.16)	(0.16)	(0.21)		(0.10)	
Other controls									
Controls for sectors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for location (town)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for current size	No	Yes	No	Yes	No	No	Yes	Yes	Yes
Instruments included									
Age	No	Yes	No	Yes	No	Yes	No	Yes	Yes
Size of labor force at start up	No	Yes	No	Yes	No	No	No	Yes	Yes
Residuals from first stage	No	No	No	No	No	No	No	No	Yes
Constant	-1.70***	-1.72***	0.08	-0.29*	0.11*	0.22	-0.50***	-0.33**	-0.50***
	(0.33)	(0.33)	(0.06)	(0.17)	(0.06)	(0.51)	(0.17)	(0.17)	(0.17)
Number of observations	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,975	1,975

Note: Standard errors in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

Greater access to these supports services by government induced-cooperatives would enable them to employ inputs differently, thereby creating significant differences in the levels of technology they adopt in comparison with non-cooperative enterprises. Using the model presented in equation 2, Table 6.2 shows estimation results on the possible impacts of government-trigger and support on production technology. We employ the generalized translog production function specification as the Cobb-Douglas restriction is resoundingly rejected.[16] The null hypothesis tested in Table 6.2 is that there is no systematic difference between cooperatives and non-cooperatives in terms of production technology adopted. This implies that all interaction terms with the cooperative dummy are not individually or jointly different from zero.

As discussed earlier, selection into cooperatives or state-inducement is far from random and hence OLS estimation is problematic. Moreover, production function estimation is often confounded with endogeneity concerns. This arises because of simultaneous determinations of inputs and outputs, as well as the possibility of correlations between one or more of the regressors with the stochastic error term. To overcome the endogeneity problem, Instrumental variable (2SLS) and Control function (2SRIE) methods are employed. Following Rijkers, Laderchi and Teal (2008), we also impose Constant Returns to Scale restrictions to estimate value added per worker as a function of factor intensities and other controls.[17]

We use the age of the entrepreneur and its interaction with input per workers and their squared terms as instruments for the cooperative dummy and its interactions with factors of production. To examine whether age is meaningfully linked with participation status, we perform a first stage regression of the function explaining cooperative status. Appendix A presents the estimation results for the sample. Across all specifications, age is negatively and statistically correlated with the cooperative dummy; i.e., younger entrepreneurs are more likely to form part of the government program than older ones. Not surprisingly, Appendix A also reveals that initial size of the labor force is positively and significantly correlated with the cooperative dummy, consistent with group formation requirements for cooperative registration.

Table 6.2 presents the 2SLS and 2SRIE results along with OLS estimates as a check for robustness. Main variables of interest in the Table 6.2 are the interactions between cooperative dummy and capital per worker and material input per worker. While we introduce controls for sector and location in all the specifications, Columns 1 to 3 do not include controls for education levels of the entrepreneur, which are included from columns 4 through 6.

The production function estimation shows that, except in the 2SLS specifications in Columns 2 and 5 where the estimates are imprecise, cooperatives employ significantly more labor-intensive technologies. The F-test for joint significance is conducted under the null hypothesis that there is no difference in technology between cooperatives and non-cooperatives. This is rejected in the 2SRIE formulation while seems to hold true across the 2SLS specifications. Table 6.2 largely confirms Hypothesis 2 that technology levels differ between cooperatives and non-cooperatives.[18]

[16] We reject the null hypothesis that the coefficients associated with the interactions between factors of production are zero at 1 % significance level.

[17] We are not, however, able to control for endogeneity arising from input utilization; i.e., reverse causality arising from highly productive firms choosing their level of input and vice versa. Rijkers, Laderchi and Teal (2008) instrumented input usage by employing input price index. Our data, however, does not contain price information both on the input and output sides. Rijkers, Laderchi and Teal (2008) results shows that the assumption of no endogeneity of input choice cannot be rejected. In addition, the inclusion of materials as explanatory variable can potentially mitigate the endogeneity concern arising from the correlation between input levels and unobserved shocks to output (e.g., Greenstone, Hornbeck and Moretti, 2010).

[18] We note that these findings stand in contrast to Rijkers, Laderchi and Teal's (2008), which do not detect any differences in technology and factor usage between group of enterprises participating in the Addis Ababa Integrated Housing Development Program and those that do not participate. Of course, the results are not directly comparable to the work of Rijkers, Laderchi

In Table 6.2, we also note that both the IV-2SLS and 2SRIE estimates are higher than OLS estimates, suggesting downward selection bias which implies negative selection in terms of entrepreneurs deciding to apply for registration in the cooperative scheme. After controlling for observables, such as education and labor experience, negative selection suggests that state-inducement is probably attracting entrepreneurs that are less capable on average.[19] x.

The test of instrument validity also confirms that the instruments are sufficiently related to the endogenous variables (Anderson LM statistics) and are exogenous and not correlated with the error term (Sargan Statistics). The Durbin-Wu-Hausmann test also rejects the null hypothesis that the instrumented variables are exogenous at 5% level of significance.

and Teal (2008) who employ data drawn from a sample of Small and Medium enterprise engaged in the construction sector in Addis Ababa in 2004.

[19] This finding appears to be consistent with findings by de Mel et al. (2014) and Giné and Mansuri (2014) that show that entrepreneurs who self-select into support programs have low cognitive abilities as measured by Raven test scores and Digit Span recalls. Yet in the Ethiopian context cooperatives are increasingly considered as important instruments whereby key business constraints, such as working premises, access to finance and skills shortage, could be alleviated even by more educated and capable individuals..

Table 6.2. Production function OLS, 2SLS and 2SRIE (control function approach) estimations

VARIABLES	Dependent variable: Log of monthly value added					
	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE
	(1)	(2)	(3)	(4)	(5)	(6)
Factors (natural logs)						
Capital per worker	0.26	0.41	0.68**	0.22	0.39	0.76**
	(0.23)	(0.42)	(0.33)	(0.23)	(0.42)	(0.33)
Material input per worker	-0.91***	-0.75***	-1.48***	-0.88***	-0.73***	-1.46***
	(0.17)	(0.28)	(0.22)	(0.17)	(0.28)	(0.22)
Capital per worker squared	0.01	0.01	-0.01	0.01	0.01	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Material input per worker squared	0.09***	0.08***	0.12***	0.09***	0.08***	0.12***
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Capital per worker* Material input per worker	-0.01	-0.02	-0.01	-0.01	-0.02	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Endogenous variables						
Cooperative dummy	3.92***	7.45**	6.76**	3.77***	7.29**	8.14***
	(0.70)	(3.35)	(2.95)	(0.70)	(3.39)	(2.90)
Cooperative *Capital per worker	-0.32***	-0.38	-1.60***	-0.31***	-0.36	-1.69***
	(0.08)	(0.42)	(0.45)	(0.08)	(0.42)	(0.45)
Cooperative * Material input per worker	-0.13*	-0.34	1.11***	-0.13*	-0.34	1.01***
	(0.07)	(0.37)	(0.35)	(0.07)	(0.37)	(0.34)
F-test joint significance	13.5***	2.20	7.34***	12.3***	2.13	7.50***
Other controls						
Years of entrepreneurial experience	0.01*	0.01**	0.01	0.01**	0.01**	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Controls for sector	Yes	Yes	Yes	Yes	Yes	Yes
Controls for town	Yes	Yes	Yes	Yes	Yes	Yes
Controls for other human capital	No	No	No	Yes	Yes	Yes
Instruments included						
Age	No	Yes	Yes	No	Yes	Yes
Employment at start-up	No	Yes	Yes	No	Yes	Yes
Age *Capital per worker	No	Yes	Yes	No	Yes	Yes
Age * Material input per worker	No	Yes	Yes	No	Yes	Yes
Age* Capital per worker squared	No	Yes	Yes	No	Yes	Yes
Age * Material input per worker squared	No	Yes	Yes	No	Yes	Yes
Age* Capital per worker* Material input per worker	No	Yes	Yes	No	Yes	Yes
Residuals from first stage	No	No	Yes	No	No	Yes
Constant	7.33***	5.86***	7.29***	7.33***	5.89***	6.73***
	(1.06)	(1.91)	(1.64)	(1.08)	(1.97)	(1.63)
Observations	1,204	1,204	1,204	1,204	1,204	1,204
R square	0.297	0.194	0.253	0.301	0.203	0.253
Tests of Instrument validity						
Anderson LM statistics		27.3***			26.7***	
Sargan Statistics		8.02*			8.20*	
Durbin-Wu-Hausman chi (2)		10.2**			8.91**	

Note. In column 2, of the three residual regressors, two are statistically significant and a joint significance test rejects the null that the residuals are jointly zero. Anderson LM statistics tests examines whether the chosen instruments are "relevant". The null hypothesis is that the instruments are not sufficiently correlated with the endogenous variable. Sargan statistics tests the validity of the instrument under the null that the instruments are uncorrelated with the error term. Durbin-Wu-Hausman tests the endogeneity of the cooperative dummy, under the null, the variable is exogenous and hence failing to reject the null hypothesis indicates that 2SLS may not be required and OLS is sufficient. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10

Table 6.3 presents formal tests of the hypothesis that the differences arising from access to production technology and government support services leads to productivity differences between cooperatives and non-cooperatives. The three productivity measures we use do not suffer from noticeable measurement error problems, as shown by strong positive correlations in Appendix E,.

Columns 1 through 3 of Table 6.3 present estimation results on OLS, 2SLS and 2SRIE for TFP index, columns 4 to 6 presents the results for DEA-efficiency score, and columns 7 through 9 presents the evidence for labor productivity under similar specifications. Across the regressions specifications in Table 6.3, there is no evidence that productivity levels differ by enterprise type; despite greater support by the state, cooperatives have not attained higher levels of productivity. Appendix D, panel 2 signifies that these results are robust to model choices. These results are not also at odds with findings from other countries. In fact, while there are few studies that show that support schemes, such as production and management skills, are associated with gains in productivity for MSEs (e.g., Mano et al., 2011), the bulk of the literature that evaluated experimental training programs offered to MSEs, indicate that they rarely increase productivity and profitability (e.g., see McKenzie and Woordruf, 2012 for a comprehensive review of the literature on the evaluation of business training for MSEs).

There are several possibilities as to why the link between state support and productivity gains could be weak. First, as indicated earlier, the support program might be accessed and used by less promising entrepreneurs who would not have started the business without state support. The review of empirical evidence by McKenzie and Woordruf (2012), for example, indicate that support programs to MSEs do not only attract low-ability people to start business, but also promotes their survival without meaningful improvements in productivity and profitability. Second, the support systems might not be sufficient in depth and content to induce greater productivity gains. For example, the quality of management skills training offered to MSEs might be suitable for the median enterprises, but not necessarily to the majority of micro and small enterprises. Similarly, there are substantial heterogeneity among service-providing institutions in terms of reach, quality, relevance and consistency of the services they deliver to their clients.[20] Third, constrains in accessing better quality raw materials, inputs and lucrative markets, might thwart improvements in production processes and product quality resulting from government support. Fourth, the support system, such as training, might help the lead person in cooperatives understand the art of management and production techniques better. The new knowledge acquired, however, might not easily trickle down to other cooperative members and workers. Fifth, by their very nature of being owned by multiple owners with equal voting rights on matters concerning what to produce, how to produce and where to sale, the cooperatives' business model might not be in sync with an efficiency enhancing management arrangement. Since executive power is highly dispersed, anecdotes suggests that a considerable amount of time, which could have been put to productive use, is often wasted in strenuous attempts to resolve frequent and minor disputes among members. Due to data limitation, we are not able to test the validity of these five hypotheses. This is a productive area for further research on MSEs.

[20] Some entrepreneurs interviewed during the data collection phase of this project, for example, claimed that in some places the one-stop services are not really one-stop services as the clients are expected to visit different locations to get several registration and licensing related services.

Table 6.3. OLS, 2SLS and 2SRIE regressions models on productivity indicators

	TFP			DEA-Efficiency Scores			Labor Productivity		
	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cooperative dummy	0.02	0.66	0.32	0.03	-0.09	-0.03	-0.27*	-1.27	-1.35
	(0.13)	(0.72)	(0.70)	(0.02)	(0.09)	(0.09)	(0.14)	(0.85)	(0.94)
Entrepreneur is male	-0.01	-0.03	-0.02	0.04***	0.04***	0.04***	0.34***	0.38***	0.37***
	(0.08)	(0.09)	(0.09)	(0.01)	(0.01)	(0.01)	(0.09)	(0.10)	(0.10)
Years of entrepreneurial experience	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Years of operation	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Entrepreneur is illiterate	-0.06	0.56***	-0.05	-0.03	-0.04	-0.04	0.03	-0.23	-0.07
	(0.21)	(0.19)	(0.22)	(0.03)	(0.03)	(0.03)	(0.22)	(0.21)	(0.24)
Entrepreneur knows how to read and write		0.59***		-0.00	0.00	-0.00	0.33	0.13	0.27
		(0.23)		(0.03)	(0.03)	(0.03)	(0.26)	(0.25)	(0.26)
Entrepreneur is primary school completed	-0.22	0.40***	-0.22	-0.01	-0.01	-0.01	0.11	-0.12	0.04
	(0.19)	(0.15)	(0.19)	(0.02)	(0.02)	(0.02)	(0.19)	(0.16)	(0.20)
Entrepreneur is high school completed	-0.36*	0.26*	-0.36*	0.00	0.01	0.00	0.33*	0.11	0.26
	(0.19)	(0.15)	(0.19)	(0.02)	(0.02)	(0.02)	(0.18)	(0.16)	(0.19)
Entrepreneur is vocational school completed	-0.68***	-0.13	-0.71***	-0.02	-0.01	-0.02		-0.12	
	(0.24)	(0.23)	(0.24)	(0.03)	(0.03)	(0.03)		(0.25)	
Other controls									
Controls for sectors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for location (town)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for current size	No	Yes	Yes	No	Yes	Yes	No	No	Yes
Instruments included									
Age	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Size of labor force at start up	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Residuals from first stage	No	No	Yes	No	No	Yes	No	No	Yes
Constant	1.63***	0.72**	1.61***	0.12***	0.18***	0.13***	6.62***	7.33***	6.82***
	(0.32)	(0.31)	(0.33)	(0.04)	(0.04)	(0.04)	(0.35)	(0.34)	(0.39)
Observations	1,341	1,341	1,341	1,416	1,416	1,416	1,407	1,407	1,407
Tests of Instrument validity									
Anderson LM statistics		42.3***			50.1***			38.7***	
Sargan Statistics		0.91**			0.06			0.10	
Durbin-Wu-Hausman chi (2)		0.80			1.87			1.52	

Note. Anderson LM statistics examines whether the chosen instruments are "relevant". The null hypothesis is that the instruments are not sufficiently correlated with the endogenous variable. Sargan statistics tests the validity of the instrument under the null that the instruments are uncorrelated with the error term. Durbin-Wu-Hausman chi (2) tests the endogeneity of the cooperative dummy, under the null, the variable is exogenous, Hence failing to reject the null hypothesis, indicates that 2SLS may not be required and OLS is sufficient. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6.4 presents results on the estimation of business practice, growth and transition of MSEs. Business practice is measured by horizontally summing five distinct business practices, 1) record keeping, 2) advertising, 3) use of bank account, 4) inspecting the quality of products regularly before selling to customers and 5) keeping track of defective products. Growth is measured by taking the ratio of the difference in natural logs of current employment and employment at start-up to enterprise's years of operation or age (e.g., Evans, 1985).

Columns 1 and 3 of Table 6.4 suggest that cooperatives enjoy higher and statistically significant business practice scores in keeping with part of Hypothesis 3. Given that cooperatives have higher likelihood of attending training on management skills, this is not surprising. This is consistent with findings that suggest that management skills training are often positively correlated with improvements in business practices among MSEs (e.g., Drexler et al. 2010; Bruhn et al. 2010; Field et al. 2010; Karlan and Valdivia 2011; Abebe and Sonobe 2012 ; Berge et al., 2012, and Mano et al. 2012). Entrepreneurs experience and education are also positively correlated with business practice scores.

Columns 4 to 6 indicate that cooperatives grow much slower than non-cooperatives. This can be partly explained by the collective problem faced by cooperatives due the presence of multiple working owners which might introduce additional constraints on enterprise growth.

Slower growth and transition is a common feature of MSEs in developing countries. MSEs are often operated as a means of survival and, at times, as the only source of livelihood by entrepreneurs who have limited wage-job opportunities. But even when entrepreneurs have multiple sources of livelihoods, they are usually plagued by non-entrepreneurial attitudes that can easily distracted them from committing appropriate amounts of time and resources to enterprise related production and management activities (e.g., Gomez, 2008). Moreover, business proceeds are principally used to cover household needs and are rarely saved for investments, a practice which is not conducive for capital accumulation and business growth.

Savings and reinvestment of profits is an essential trait of entrepreneurs. Without increasing their size, scale advantages associated with imitation, technology adoption and marketing would not be appropriated. It is thus not surprising, that the majority of enterprises in our sample have low rates of growth and probabilities of transition. Indeed, studies on MSEs indicate that the vast majority of enterprises do not grow at all (e.g., Mead & Liedholm, 1998 and McPherson, 1996), and the probability of transition from micro into larger establishment group is not greater than 1% (Mead & Liedholm, 1998, p. 67).

Column 8 of Table 6.4 shows that conditional on growth, cooperatives are more likely to transit into larger size category.[21] This result suggests that there are capable entrepreneurs that operate rapidly growing enterprises with the potential to create a greater number of jobs within the cooperative enterprise group. This calls for more targeted programs that clearly distinguish between enterprises that are growth-oriented and dynamic, and those that are survivalist and have limited chances of transformation. Government support should be tailored to address the different sets of binding constraints faced by the two groups of enterprises.

Table 6.4 also shows that MSEs operated by more educated entrepreneurs enjoy positive rates of growth; MSEs operated by university graduates particularly grow faster, reflecting the importance of management know-how and its correlation with levels of education (e.g., Sonobe and Otsuka, 2006, 2011). The control function (2SRIE) in Column 6 of Table 6.4 also indicates that male-operated enterprises grow faster. This is consistent with the findings

[21] Transition variable assumes the value one if the enterprise, that started out in any of the rows in Table 5.4, has moved to a larger size category indicated in the columns; i.e., shifted to the upper right cells above the table's diagonal of shaded cells.

of McPherson (1996) and Mead and Liedholm (1998). McPherson (1996) demonstrates that female run enterprises in South Africa, Swaziland and Botswana grow more slowly than male-headed enterprises. Similarly Mead and Liedholm (1998) provide a statistical analysis that suggests female-headed enterprises not only grow slower, but also are more likely to exit than male-headed enterprise.

Table 6.4. Estimated models of business practice, growth and transition

	Business practice score			Growth			Transition	
VARIABLES	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE	Un-conditional IV-Probit	Conditional IV-Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cooperative dummy	0.39***	0.67	1.58***	-0.11***	-1.52***	-1.65***	-0.61	2.36**
	(0.08)	(0.44)	(0.45)	(0.02)	(0.19)	(0.10)	(0.76)	(1.07)
Entrepreneur is male	0.00	-0.01	-0.03	0.01	0.04	0.06***	0.16	0.10
	(0.06)	(0.06)	(0.06)	(0.01)	(0.03)	(0.01)	(0.13)	(0.16)
Years of entrepreneurial experience	0.01***	0.01***	0.01***	0.00***	0.00	0.00	0.01	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Years of operation	-0.01*	-0.01	-0.01	-0.00***	-0.01***	-0.01***	0.02*	0.05**
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)
Entrepreneur is illiterate	-0.73***	-0.87***	-0.62***	-0.11***	-0.16**	-0.13***	-0.53*	-0.03
	(0.14)	(0.13)	(0.14)	(0.03)	(0.06)	(0.03)	(0.31)	(0.42)
Entrepreneur knows how to read and write	-0.55***	-0.71***	-0.49***	-0.12***	-0.10	-0.08**	-0.50***	-0.38*
	(0.16)	(0.15)	(0.16)	(0.04)	(0.07)	(0.03)	(0.18)	(0.22)
Entrepreneur is primary school completed	-0.44***	-0.60***	-0.36***	-0.09***	-0.08*	-0.07***	-0.34**	-0.20
	(0.11)	(0.10)	(0.11)	(0.03)	(0.05)	(0.02)	(0.16)	(0.20)
Entrepreneur is high school completed	-0.17	-0.32***	-0.09	-0.10***	-0.10**	-0.08***	0.16	-0.05
	(0.11)	(0.10)	(0.11)	(0.02)	(0.05)	(0.02)	(0.22)	(0.31)
Entrepreneur is vocational school completed		-0.18		-0.08**	0.04	0.04	0.16	0.10
		(0.14)		(0.03)	(0.07)	(0.03)	(0.13)	(0.16)
Other controls								
Controls for sectors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for location (town)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for current size	Yes	Yes	Yes	No	No	No	Yes	Yes
Size of labor force at start up	No	No	No	Yes	Yes	Yes	No	No
Instruments included								
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size of labor force at start up	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Residuals from first stage	No	No	Yes	No	Yes	Yes	No	No
Constant	1.73***	2.50***	1.54***	0.11*	0.32***	0.16***	-2.42***	-2.24**
	(0.23)	(0.22)	(0.24)	(0.06)	(0.11)	(0.05)	(0.57)	(0.97)
Observations	1,971	1,971	1,971	1,588	1,588	1,588	2710	634
Tests of Instrument validity								
Anderson LM statistics		72.3***			71.6***			
Sargan Statistics		0.70			4.10**			
Durbin-Wu-Hausman chi (2)		0.53			224.6***			

Note. Anderson LM statistics examines whether the chosen instruments are "relevant". The null hypothesis is that the instruments are not sufficiently correlated with the endogenous variable. Sargan statistics tests the validity of the instrument under the null that the instruments are uncorrelated with the error term. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6.5 presents estimation results on monthly sales revenue, value added and gross profit. Value added is calculated by subtracting raw material cost, utility expenses and transportation cost from sales revenue. Gross profit is given by the difference between value added and labor cost.[22] Columns 1 and 2 suggest that cooperatives have higher sales turnover. Values added and gross profit, however, appears to be largely comparable between cooperatives and non-cooperatives.

Levels of educational attainment appear to be the most important variables that explain enterprise performance, irrespective of specification choices in Table 6.5. Enterprises run by university graduates (excluded in the model) are significantly larger than enterprises run by illiterate entrepreneurs. To the extent that education is positively correlated with managerial capability, more educated entrepreneurs are likely to overcome both monotonous and structural business problems that stifle their growth.

Consistent with Table 6.4, Table 6.5 shows that male-operated enterprises enjoy higher sales revenue, create larger values and are more profitable than female-run enterprises on average. There are numerous gender related challenges female-operated enterprises uniquely face. In addition to a tradition of male dominance in many developing countries that disproportionately burden women with household activities, the right and obligations faced by society is asymmetrical between men and women, limiting the latter's growth possibilities (Nichter and Goldmark, 2009). Female-headed enterprise are, for example, more likely to see funds end up covering the family's basic needs and female entrepreneurs are less likely to embark on risky expansive ventures, which can be an impetus for enterprise growth.

Table 6.5 taken together with Table 6.4, provides support to Hypothesis 4, in that educated entrepreneurs operate enterprises that grow faster and are on average larger. This holds true irrespective of the nature of the production activities in which the entrepreneurs are engaged. Moreover, the matching estimation results presented in Appendix D, panels 3 and 4, are highly consistent with the results obtained in Tables 6.4 and 6.5. This suggests that the results are not driven by an artifact of specification choice or model set up.

[22] Since we do not have a measure of monthly capital cost and tax payments, we are not able to calculate net profit.

Table 6.5. 2SLS and 2SRIE regressions models on sales value added and gross profit

	Sales revenue			Value added			Gross Profit		
VARIABLES	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE	OLS	2SLS	2SRIE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cooperative dummy	0.40***	1.11*	0.64	0.16	0.75	-0.16	0.16	0.15	-1.86
	(0.11)	(0.57)	(3.13)	(0.15)	(0.76)	(4.17)	(0.17)	(0.82)	(4.50)
Entrepreneur is male	0.36***	0.34***	0.36***	0.50***	0.47***	0.51***	0.46***	0.46***	0.52***
	(0.07)	(0.07)	(0.12)	(0.10)	(0.10)	(0.15)	(0.10)	(0.11)	(0.17)
Years of entrepreneurial experience	0.00	0.00	0.00	0.01	0.01*	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years of operation	0.02***	0.02***	0.02*	0.01	0.02*	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Entrepreneur is illiterate	-0.59***	-0.55***	-0.58***	-0.62***	-0.60***	-0.62***	-0.63***	-0.62***	-0.67***
	(0.16)	(0.16)	(0.17)	(0.22)	(0.22)	(0.23)	(0.24)	(0.23)	(0.25)
Entrepreneur knows how to read and write	-0.34*	-0.33*	-0.35*	-0.25	-0.26	-0.25	-0.21	-0.18	-0.18
	(0.18)	(0.18)	(0.19)	(0.25)	(0.25)	(0.26)	(0.27)	(0.27)	(0.28)
Entrepreneur is primary school completed	-0.30**	-0.28**	-0.30**	-0.29*	-0.28	-0.28*	-0.38**	-0.36*	-0.38**
	(0.12)	(0.12)	(0.12)	(0.17)	(0.17)	(0.17)	(0.19)	(0.19)	(0.19)
Entrepreneur is high school completed	-0.11	-0.08	-0.11	-0.02	-0.01	-0.02	-0.07	-0.05	-0.06
	(0.12)	(0.12)	(0.12)	(0.17)	(0.17)	(0.17)	(0.19)	(0.19)	(0.19)
Entrepreneur is vocational school completed	-0.17	-0.21	-0.19	-0.26	-0.32	-0.24	-0.31	-0.27	-0.17
	(0.16)	(0.17)	(0.27)	(0.24)	(0.25)	(0.37)	(0.26)	(0.29)	(0.41)
Other controls									
Controls for sectors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for location (town)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size of labor force at start up	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Instruments included									
Age	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size of labor force at start up	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Residuals from first stage	No	No	Yes	No	No	Yes	No	No	Yes
Constant	7.49***	7.57***	7.48***	7.33***	7.39***	7.33***	6.87***	7.62***	6.94***
	(0.26)	(0.27)	(0.28)	(0.35)	(0.35)	(0.36)	(0.39)	(0.38)	(0.42)
Observations	1,920	1,920	1,920	1,418	1,418	1,418	1,263	1,263	1,263
Tests of Instrument validity									
Anderson LM statistics		65.7***			51.1***			48.5***	
Sargan Statistics		0.05			0.09			0.21	
Durbin-Wu-Hausman chi (2)		1.47			0.55			0.00	

Note. Anderson LM statistics examines whether the chosen instruments are "relevant". The null hypothesis is that the instruments are not sufficiently correlated with the endogenous variable. Sargan statistics tests the validity of the instrument under the null that the instruments are uncorrelated with the error term. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

7. Conclusions

MSEs account for a sizable proportion of employment in many developing countries. While they are also responsible for a large number of new jobs, MSEs also have higher failure rates, destroying jobs along with their exit. Numerous growth and survival constraints that MSEs face explain their low growth and high exit rates. Lack of appropriate support services by governments to overcome these constraints has been one of the impediments that thwart enterprise growth and transformation in low income countries.

As a means to alleviate urban unemployment, the Ethiopian government has been pursuing a dual-tracked approach to support the development of MSEs. While the MSE development strategy and support framework is designed to encourage existing enterprises, in effect it also triggers the creation of enterprises that are very different from existing ones: cooperatives. In this paper, we assess whether these program-induced enterprises (cooperatives) are systematically different from self-initiated enterprises (non-cooperatives) in several observable dimensions.

We find that cooperatives are younger and larger enterprises, operated by more educated and younger entrepreneurs. Non-cooperatives, in contrast, appear to be older, smaller and informal enterprises. We also observe that cooperatives benefit from a wide-range of support services by the government. Consistent with the government's strategy, better access to these supports services seems to have encouraged cooperatives to employ more labor intensive technologies and better business practices. Once we control for education and gender of the entrepreneur, however, there is no evidence to suggest that cooperative are more productive than non-cooperatives.

On average, cooperatives appear to have contracted in size since start-up and annual employment growth is slower in comparison with self-initiated enterprises. Such averages, however, mask underlying heterogeneity among cooperatives. For example, we find that cooperatives that have positive rates of growth enjoy substantially higher probabilities of transition into larger size categories. Such types of enterprises, however, makeup a small share of the cooperative sample, which makes inference rather difficult.

Lessons from existing MSEs promotional polices dictate the need for properly targeting state support to entrepreneurs who are more entrepreneurial or growth-oriented. The government support system, thus far, does not distinguish between capable and growth-oriented enterprises that can potentially graduate into the next size category, from survivalist types of enterprises that have limited scope for growth, transition and job creation. Growth-oriented entrepreneurs consciously pursue growth objectives, and hence continuously accumulate capital and re-invest their earnings back into their businesses. As a result, compared to survival-type of enterprises, growth-oriented entrepreneurs grow faster, are more productive and profitable and, more importantly, create higher quality jobs. Government support schemes should differentiate between entrepreneurs operating growing and dynamic enterprises that are capable of creating new jobs and those that consider MSEs as static sources of income rather than business instruments to change ones livelihood.

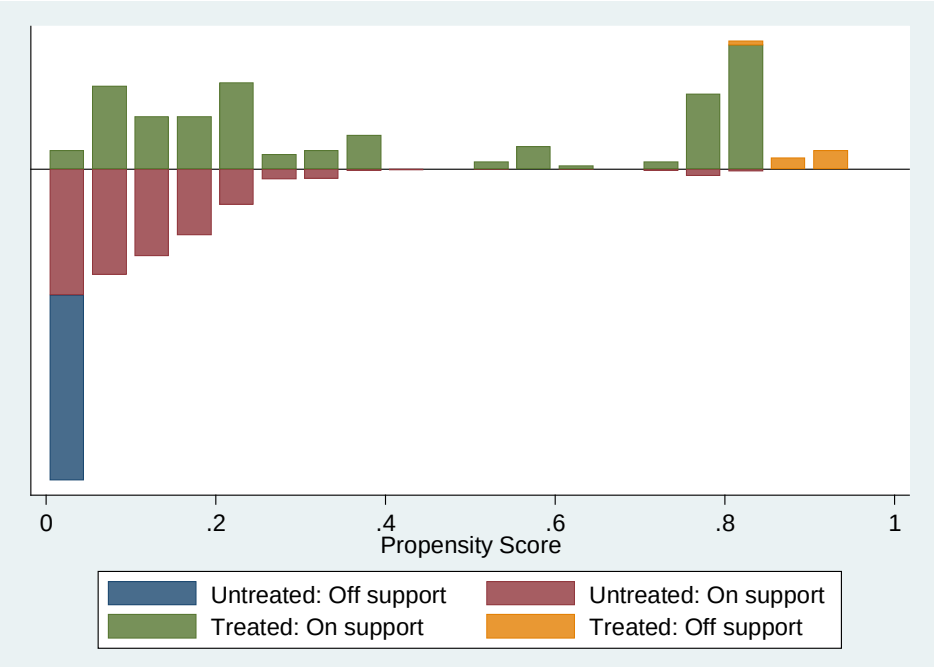
Appendices

Appendix A: First stage regression of variables explaining cooperative status: cooperative dummy is the dependent variable.

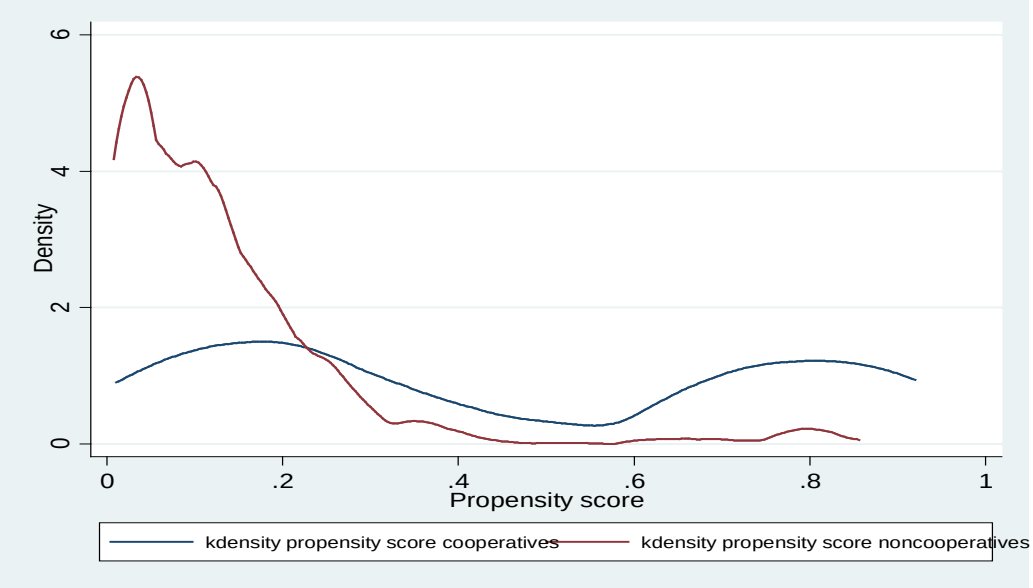
	Probit model: Dependent variable is Cooperative Status (Yes==1_		
	(1)	(2)	(3)
Entrepreneur's age	-0.01***	-0.01**	-0.01*
	(0.00)	(0.00)	(0.00)
Initial size of labor force at start up	0.04***	0.04***	0.03***
	(0.00)	(0.00)	(0.00)
Entrepreneur is male	0.48***	0.45***	0.12
	(0.08)	(0.08)	(0.10)
Years of entrepreneurial experience	-0.01	-0.01	-0.00
	(0.01)	(0.01)	(0.01)
Years of operation	-0.04***	-0.04***	-0.03**
	(0.01)	(0.01)	(0.01)
Entrepreneur is illiterate		-1.06***	-1.03**
		(0.30)	(0.43)
Entrepreneur knows how to read and write		-0.43*	0.10
		(0.25)	(0.28)
Entrepreneur is primary school completed		-0.21	-0.01
		(0.13)	(0.16)
Entrepreneur is high school completed		-0.18	0.01
		(0.13)	(0.15)
Entrepreneur is vocational school completed		0.20	0.37*
		(0.17)	(0.20)
Other controls			
Controls for sectors	No	No	Yes
Controls for location (town)	No	No	Yes
Constant	-0.98***	-0.89***	-1.59***
	(0.14)	(0.17)	(0.54)
Observations	1,975	1,975	1,975

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

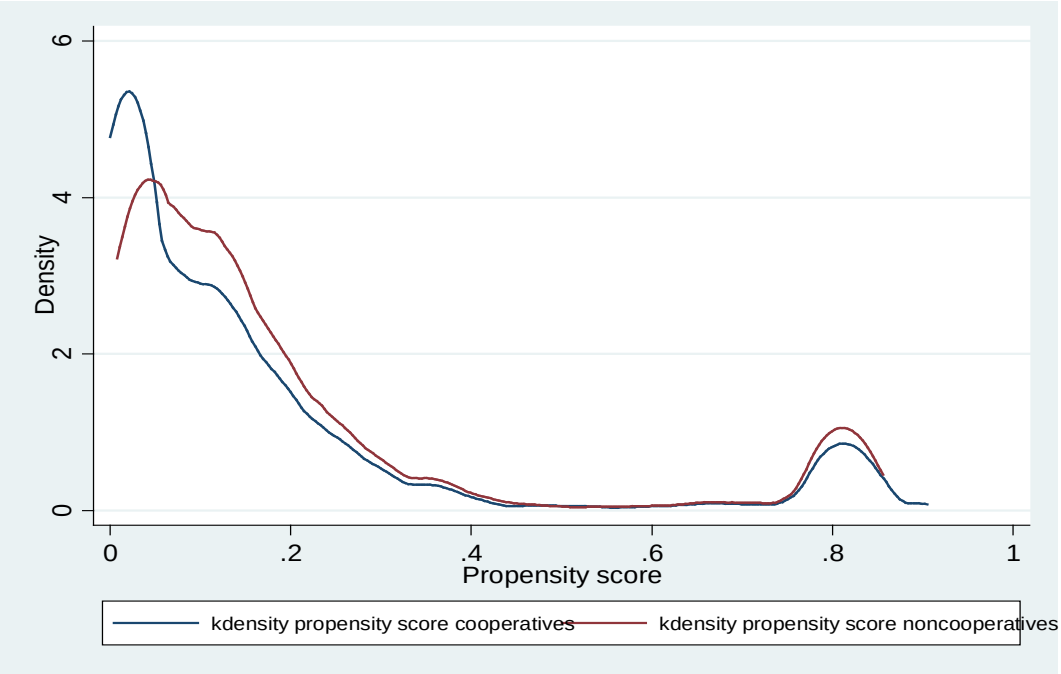
Appendix B: Propensity score distribution of the treatment (cooperative) and the untreated (non-cooperative) group



Appendix C: Propensity score distribution of cooperatives and non-cooperatives: unmatched sample



Propensity score distribution of cooperatives and non-cooperatives: matched sample



Appendix D: PSM matching estimation results (coefficients on cooperative dummy)

Panel 1. Estimation results on access to various support services

	Training on production technologies	Received land from the government	Received one-stop service from the government	Aggregate support score
	(1)	(2)	(3)	(4)
PSM	0.42***	0.40***	0.20***	1.33***
Boot-strapped standard errors	(0.07)	(0.06)	(0.07)	(0.14)
Number of Observations	1975	1975	1975	1972

Panel 2. Estimation results on productivity indicators

	TFP	DEA-Efficiency Scores	Labor Productivity
	(1)	(2)	(3)
PSM	0.27	-0.06	-0.02
Boot-strapped standard errors	(0.26)	(0.33)	(0.22)
Number of Observations	1431	1407	1873

Panel 3. Estimated results on business practice, growth and transition

	Business practice score	Growth	Transition	
			Unconditional	Conditional
	(1)	(2)	(3)	(4)
PSM	0.35***	-0.12**	0.03	0.21**
Boot-strapped standard errors	(0.17)	(0.06)	(0.03)	(0.08)
Number of Observations	1971	1588	1975	512

Panel 4. Estimation results on sales value added and gross profit

	Sales revenue	Value added	Gross Profit
	(1)	(2)	(3)
PSM	0.51**	0.34	0.44
Boot-strapped standard errors	(0.24)	(0.31)	(0.31)
Number of Observations	1920	1418	1229

Appendix E: Distribution of productivity measures

Table E1 Distribution of natural logs of labor productivity and TFP by enterprise type

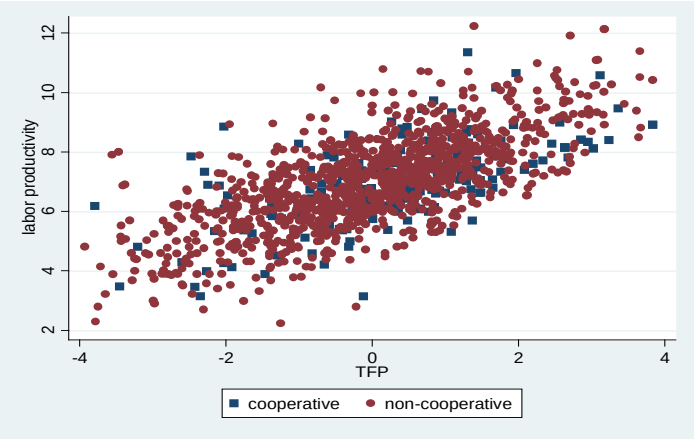


Table E2. Distribution of natural logs of labor productivity and DEA efficiency score by enterprise type

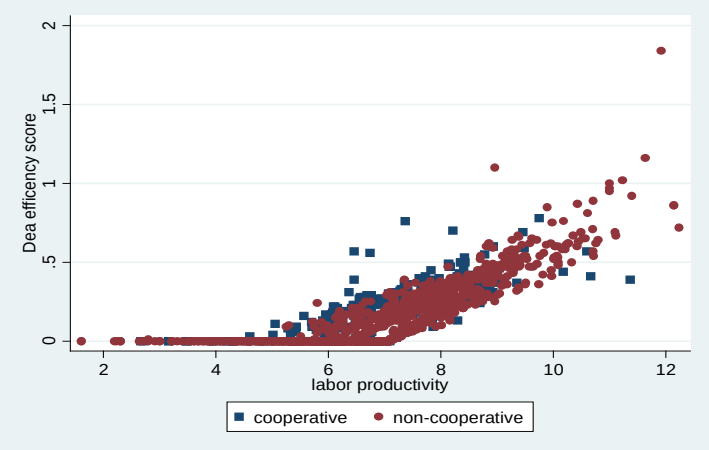
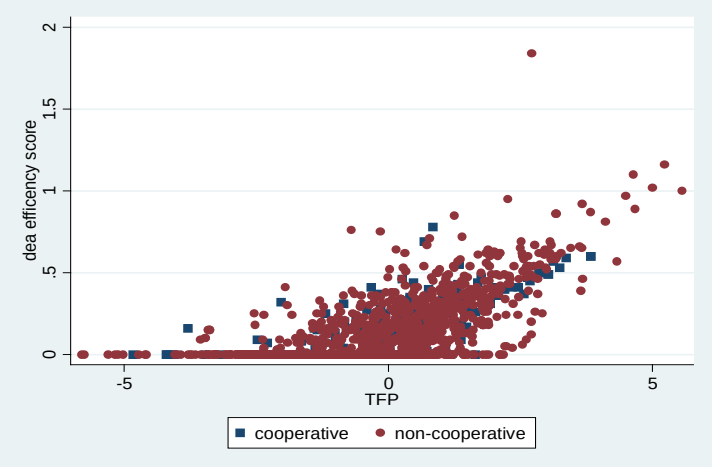


Table E3. Distribution of TFP and DEA efficiency score by enterprise type



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